at a time. This was unavailing. The only other land bird observed was a Barn Swallow (*Hirundo rustica erythrogaster*) on Bush Key, June 22.

Dates of the 1947 survey were June 20 through June 26, 1947.

Vegetation on Bush Key continues to spread, and practically the whole island is now clothed to high-water mark, with one or two small sand areas still existing. Should no hurricane occur this season there is no reason to believe that there will be any cessation of this growth, and with Garden Key nesting sites rather fully occupied, it remains to be seen what the season of 1948 will present!

The Crescent
Charleston 50
South Carolina

THE SEASONS OF BIRD SONG—THE CESSATION OF SONG AFTER THE NESTING SEASON

BY ARETAS A. SAUNDERS

IT is well-known that when the breeding cycles of birds are over, usually from middle to late summer, song gradually ceases. But only a few detailed studies of this phenomenon have been made and published, and there is much still to learn. The first of these studies in America, to my knowledge, is that of Bicknell (1884–1885). Since then the chief publications on this subject that have come to my attention are those of Fry (1916), Baerg (1930), Vaurie (1946) and my own (1926 and 1938). Some of these studies have been for a single season only, but the authors have recognized the desirability of making such studies over a period of years in a single locality.

The time of cessation for each species, and the manner in which it takes place, varies from year to year, evidently according to weather conditions. Just which conditions are the important ones is something still to be solved. The direct cause of cessation seems to be the approach of the postnuptial molt, and since the time of cessation varies with the years it is probable that the time of molt does also. This leads to the conclusion that the weather conditions that cause the difference are more deep-seated than the change from warm to cool, or fair to rain, from day to day. These local changes often affect the amount of singing from one day to another, but they cannot cause the change in the birds' physical condition that comes with the postnuptial molt and causes complete cessation of song.

More studies of this subject, from various different localities, and covering a period of years, are highly desirable. There is not only

variation in localities that differ in latitude and altitude, but also differences in the extent to which these factors affect different species. For example, my studies show that in Allegany State Park, Cattaraugus County, New York, the Towhee and the Yellow-throat cease singing at very nearly the same time. In Fairfield County, Connecticut, however, the Towhee definitely sings later than the Yellow-throat. Studies over a period of years show that there is often a difference of two weeks to almost a month in the earliest and latest dates that songs cease, for each species.

The study of cessation in the field is not always easy, but it can furnish, to an ambitious field ornithologist, a special interest for that season of the year that lies between the nesting season and the fall migration. In the study one must keep alert to bird songs of all kinds and keep daily records of the songs heard, and the numbers of each species heard singing. If this is not done, and begun some time before true cessation occurs, one is likely to discover that a certain bird that was singing abundantly a week or two ago, is now singing very little or not at all. When did the song stop or begin to decline? Unless daily records are kept the observer cannot be sure.

In Vaurie's paper (1946) an excellent method of making such studies is explained—that of going over the same route each day, at the same time of day. I have not tried this, but having lived, both in the Allegany Park and in my present home, in localities where many bird songs can be heard in the height of the season, I have been able to make daily comparisons of the same individual birds. One may come to know an individual bird by the location of its singing tree, and often, if one listens to the song carefully, by some peculiar individual character in song (Saunders, 1924).

One must be careful not to confuse cessation, due to the approach of the molt, with a temporary cessation or decline due to the condition of the nesting cycle. Certain species cease singing during certain parts of the nesting cycle, and then resume singing when that part is over. Early in May one may notice a decline in the singing of Field Sparrows, due to the fact that mated males cease to sing (Walkinshaw, 1945: 12). Catbirds and Thrashers usually cease singing during the period of incubation, whereas Song Sparrows cease when they acquire a mate and begin again when incubation starts (Nice, 1943: 172–174). We know comparatively little about this for most species; a good many writers on nesting habits do not mention whether the birds sang or not. I am inclined to believe that all or a majority of tree-nesting species sing throughout the nesting cycle, but nesters on the ground, in low bushes and in holes, cease singing for a part of the time.

The decline of song when the molt is approaching is usually gradual both in individuals and in the species. A mere recording of the last date on which a song is heard is not sufficient. In fact, such dates are inclined to be misleading. For example, in this last summer, 1946, the last Scarlet Tanager that I heard sang on August 9. But for several days before that I had heard no Tanager song. In fact, my notes show that there was a noticeable beginning of cessation as early as July 17, that by July 27 the majority of birds had ceased singing, and that after that date I heard only one bird in any one day, with several days intervening in which I heard none. This same sort of thing is generally true of all species, so that I find it of value to record, for each species, three different dates: (1) when the first decline of song is noted; (2) when the species, as a whole, has ceased singing; and (3) when the last individual song is heard.

Fry (1916) shows an excellent method of diagramming the results. Such diagrams could be used for any one species in a single year, or for the average results over a period of years. Such data, however, cannot be obtained for every breeding species in a region, but only for those that are common and widely distributed. For rarer species, or those that occur locally, only the last dates of singing can be definitely recorded. For that reason I have recorded my results, for each of the two regions where I have obtained data, in two tables: one giving complete results for the commoner species, and the other the last song only.

Another point that we must consider in the study of cessation is the fact that certain species revive the song when the molt is over. The subject of revival is a different matter that I intend to deal with in another paper. But there are certain species, such as the Baltimore Oriole, the vireos, and several of the warblers, where revival follows so soon after cessation that it is difficult to determine whether a particular song is the last one before cessation or the beginning of revival. Probably every individual of such a species ceases singing for a definite period during the molt. But different individuals do so at different times, so that there is little or no time through the summer that the species is altogether silent.

In my own studies of cessation I am unable to present data for as long a period of years as in the study of spring singing. Though my residence has been in Connecticut for many years, there was a period from 1921 to 1940 when I did not spend a single summer there. Until the summer of 1927 the localities were more or less scattered from year to year while I was engaged in research work for the Roosevelt Wildlife Station. From 1927 on, I was located at the Allegany School of

Natural History, and was able to make studies of cessation there for a period of fourteen years. Since 1940 I have completed six years' study of the subject in Connecticut.

In the Allegany Park I was able to make fairly complete studies for the species that breed in the forested hills, where the Allegany School was located. Other species were common in the open fields and valleys, but I was unable to visit these places frequently enough to obtain complete data. In Connecticut I was able to study both birds of wooded areas and of the open.

I have data for 64 species as shown in the following tables. I have omitted subspecies. They have no particular significance in this study. Anyone who insists upon them may determine them from geographical ranges as readily as I. At the rate at which new subspecies are now being described, many names I might use are likely to be changed in a few years.

The tables, for cessation of the different species in each of the two regions, follow. In those tables where only dates of last songs are given, the species are not all uncommon, but the non-passerine species and the Nuthatch and Chickadee are erratic in singing habits, so that it is difficult or impossible to determine other dates than those of last songs. In the Allegany Park table I included some dates recorded in the years 1921 and 1922, when I was in the region, but before the Allegany School was started, and before I made records of anything but the last songs heard. The dates for these years have been previously published (Saunders, 1926: 486–491).

In addition to the above, the Long-billed Marsh Wren sang until August 2, 1942, and August 12, 1946, but its singing was not observed in other years. The Sharp-tailed Sparrow, a bird that, though common in the proper localities, sings very little, was heard on August 9, 1941.

The Black-billed Cuckoo was heard in seven years because in 1940 I returned to Connecticut earlier than usual, and the bird did some very late singing that year.

The singing of cuckoos, from year to year, is exceedingly erratic. Some details of this have been previously published (Saunders, 1938: 43–45).

As far as possible I have checked the dates of singing and cessation with the seasons of molt as reported by Dwight (1900). He does not give the time of postnuptial molt in all species but with most of those where he does the dates check well. In the case of the Mourning Warbler my data would indicate that the molt should begin in mid-July, rather than in August.

CESSATION OF SONG IN ALLEGANY STATE PARK, CATTARAUGUS CO., N. Y.
1927–1940, INCLUSIVE

	Beginning of cessation			*General cessation*			*Last individual song*		
Species	*Average*	*Earliest*	*Latest*	*Average*	*Earliest*	*Latest*	*Average*	*Earliest*	*Latest*
PHOEBE	7– 9	7– 1–'33	7–19–'40	7–12	7– 3–'36	7–21–'27	7–17	7– 8–'33	7–31–'28
LEAST FLYCATCHER	7–11	7– 2–'38	7–18–'34	7–15	7– 7–'38	7–21–'35	7–18	7– 7–'38	7–29–'36
HOUSE WREN	7–21	7–11–'27	8– 4–'37	7–25	7–16–'30	8– 6–'37	8– 3	7–21–'27	8–17–'33
CATBIRD	7–15	7– 2–'29	7–26–'37	7–21	7– 5–'29	7–31–'37	7–25	7– 8–'29	8– 2–'37
ROBIN	8– 2	7–28–'38	8–15–'39	8– 6	7–29–'29	8–15–'39	8–11	7–25–'29	8–22–'37
HERMIT THRUSH	8– 4	7–27–'27	8–13–'35	8–10	7–31–'29	8–17–'39	8–14	7–31–'29	8–25–'31
BLUE-HEADED VIREO	8– 7	7–29–'29	8–15–'38	8–10	7–29–'29	8–23–'36	8–17	8– 1–'29	8–28–'35
RED-EYED VIREO	8– 7	7–19–'29	8–16–'36	8–13	7–26–'29	8–25–'38	8–17	8– 1–'29	8–27–'38
MAGNOLIA WARBLER	7–21	7–14–'33	8– 1–'37	7–23	7–20–'33	8– 4–'37	8– 2	7–26–'33	8–15–'37
BLACK-THROATED BLUE WARBLER	7–12	7– 6–'32	7–16–'37	7–14	7– 6–'32	7–21–'30	7–21	7–14–'27	8– 6–'31
BLACK-THROATED GREEN WARBLER	7–25	7–17–'29	8– 7–'27	7–29	7–18–'36	8–11–'37	8– 4	7–26–'36	8–19–'37
CHESTNUT-SIDED WARBLER	7–14	7– 9–'32	7–20–'35	7–16	7– 9–'32	7–23–'31	7–19	7–12–'29	7–30–'38
OVEN-BIRD	7–15	7– 5–'29	7–26–'37	7–18	7–12–'29	7–26–'37	7–21	7–12–'33	8– 4–'39
YELLOW-THROAT	7–25	7–20–'38	8– 1–'29	7–30	7–27–'35	8– 2–'37	8– 3	7–29–'39	8–13–'37
CANADA WARBLER	7–11	7– 7–'36	7–22–'37	7–14	7–10–'30	7–28–'37	7–18	7–11–'29	7–31–'37
REDSTART	7– 7	7– 2–'30	7–12–'40	7–11	7– 4–'38	7–15–'35	7–16	7– 7–'29	7–27–'36
SCARLET TANAGER	7–18	7– 8–'29	7–25–'37	7–24	7–12–'29	8– 1–'37	7–28	7–14–'36	8–10–'37
ROSE-BREASTED GROSBEAK	7–10	7– 1–'29	7–16–'37	7–14	7– 1–'29	7–19–'35	7–19	7–12–'30	8– 3–'37
INDIGO BUNTING	7–24	7–14–'32	7–31–'37	7–31	7–19–'34	8– 7–'31	8– 8	7–26–'34	8–21–'39
GOLDFINCH	7–30	7–14–'27	8– 6–'30	8– 6	7–19–'34	8–18–'35	8–15	8– 2–'34	8–28–'35
TOWHEE	7–23	7–13–'36	7–31–'33	7–29	7–20–'29	8– 3–'33	8– 5	7–30–'31	8–13–'37
SLATE-COLORED JUNCO	7–27	7–18–'29	8– 4–'37	8– 2	7–23–'29	8–13–'37	8– 7	7–26–'31	8–20–'37
CHIPPING SPARROW	7–24	7–17–'32	8– 1–'28	7–29	7–24–'32	8– 4–'35	8– 4	7–28–'27	8–10–'38
FIELD SPARROW	7–24	7–21–'32	8– 3–'28	8– 3	7–27–'33	8–11–'38	8–12	8– 2–'34	8–16–'37
SONG SPARROW	8– 9	8– 3–'37	8–16–'28	8–14	8– 9–'29	8–25–'31	8–18	8– 9–'29	8–25–'31

CESSATION OF SONG IN FAIRFIELD COUNTY, CONNECTICUT
1941–1946 INCLUSIVE

	Beginning of cessation			*General cessation*			*Last individual song*		
Species	*Average*	*Earliest*	*Latest*	*Average*	*Earliest*	*Latest*	*Average*	*Earliest*	*Latest*
CRESTED FLYCATCHER	7–21	7–13–'46	7–27–'45	7–24	7–17–'46	8– 1–'45	7–31	7–17–'46	8– 6–'42
PHOEBE	7– 8	7– 7–'44	7– 8–'45	7–15	7–12–'46	7–18–'44	7–31	7–20–'43	8–13–'44
LEAST FLYCATCHER	7– 7	7– 1–'46	7–16–'41	7–13	7– 9–'46	7–19–'42	7–19	7–11–'46	7–30–'42
HOUSE WREN	7–31	7–24–'44	8– 7–'42	8– 7	8– 3–'46	8–11–'41	8–14	8– 6–'43	8–21–'42
CATBIRD	7–23	7–20–'43	7–26–'42	7–27	7–23–'44	7–31–'43	8– 5	7–29–'44	8– 9–'41
BROWN THRASHER	6–22	6–17–'45	6–25–'44	6–30	6–26–'45	7– 7–'41	7– 8	7– 3–'45	7–16–'41
ROBIN	7–26	7–18–'44	7–30–'41	8– 4	7–30–'43	8– 6–'45	8–14	8– 7–'42	8–23–'44
WOOD THRUSH	7–27	7–23–'44	8– 2–'43	7–31	7–27–'44	8– 5–'43	8– 5	7–30–'44	8–16–'46
VEERY	7– 7	6–29–'46	7–14–'41	7–14	7–11–'45	7–18–'41	7–16	7–11–'45	7–22–'43
WHITE-EYED VIREO	8– 4	8– 2–'42	8– 7–'44	8– 8	8– 3–'46	8–12–'44	8–11	8– 4–'42	8–17–'44
YELLOW-THROATED VIREO	8– 1	7–25–'46	8–12–'41	8– 7	7–29–'46	8–12–'41	8–13	8– 6–'46	8–23–'41
RED-EYED VIREO	8– 7	7–29–'46	8–12–'44	8–11	8– 8–'46	8–17–'42	8–15	8– 9–'45	8–19–'44
WARBLING VIREO	8– 5	8– 3–'41	8– 8–'44	8– 8	8– 5–'43	8–12–'44	8–14	8– 6–'41	8–19–'42
BLACK AND WHITE WARBLER	7– 7	7– 2–'46	7–12–'43	7–12	7– 4–'46	7–19–'42	7–17	7–13–'44	7–22–'43
BLUE-WINGED WARBLER	6–21	6–11–'46	7– 1–'44	6–28	6–25–'45	7– 7–'44	7– 6	6–28–'41	7–11–'44
YELLOW WARBLER	7–12	7– 6–'46	7–20–'41	7–16	7–10–'46	7–27–'43	7–20	7–13–'46	7–30–'43
CHESTNUT-SIDED WARBLER	7–12	7– 7–'45	7–15–'42	7–17	7–11–'45	7–20–'43	7–21	7–15–'45	7–24–'43
OVEN-BIRD	7– 9	7– 6–'44	7–14–'41	7–16	7– 8–'44	7–22–'43	7–20	7–13–'44	7–28–'43
YELLOW-THROAT	7–21	7–17–'44	7–25–'43	7–26	7–19–'44	8– 3–'45	8– 2	7–23–'44	8–14–'45
YELLOW-BREASTED CHAT	7–13	7– 7–'44	7–18–'41	7–19	7–11–'44	7–26–'41	7–25	7–11–'44	8– 9–'46
REDSTART	7– 5	7– 1–'46	7–11–'41	7– 8	7– 2–'44	7–15–'43	7–20	7– 7–'45	7–30–'43
BOBOLINK	6–29	6–24–'43	7– 3–'45	7– 4	7– 2–'43	7– 8–'42	7– 9	7– 2–'43	7–18–'42
MEADOWLARK	7–29	7–14–'45	8– 9–'43	8– 4	7–21–'45	8–20–'43	8–12	8– 2–'45	8–25–'43
RED-WING	7–12	7– 7–'45	7–25–'43	7–20	7–14–'45	7–25–'43	7–26	7–21–'45	7–31–'43
BALTIMORE ORIOLE	7– 1	6–28–'46	7– 3–'42	7– 6	6–29–'46	7– 7–'45	7–13	7– 3–'46	7–20–'42
SCARLET TANAGER	7–22	7–17–'46	7–26–'42	7–28	7–23–'43	7–31–'41	8– 2	7–25–'44	8–10–'41
ROSE-BREASTED GROSBEAK	7– 6	7– 4–'45	7– 8–'44	7–13	7– 7–'45	7–21–'44	7–21	7–14–'42	7–25–'43
INDIGO BUNTING	8– 1	8–27–'43	8– 5–'41	8– 5	7–30–'43	8–10–'44	8–13	8– 8–'43	8–19–'44
GOLDFINCH	8– 9	8– 3–'43	8–17–'41	8–18	8–10–'46	8–24–'41	8–26	8–18–'43	8–31–'42
TOWHEE	8– 5	8– 3–'45	8–17–'41	8–10	8– 6–'46	8–16–'41	8–13	8– 7–'43	8–18–'41
CHIPPING SPARROW	7–21	7–15–'46	7–26–'42	7–27	7–20–'46	8– 1–'42	8– 4	7–29–'44	8– 9–'46
FIELD SPARROW	8– 4	7–27–'46	8– 8–'43	8–14	8– 5–'46	8–21–'42	8–23	8–18–'46	8–28–'42
SONG SPARROW	8–12	8– 6–'46	8–15–'42	8–18	8–13–'41	8–22–'42	8–28	8–26–'46	8–31–'41

DATES OF LAST SONGS IN ALLEGANY STATE PARK, AND VICINITY NEW YORK, 1921–1922 AND 1927–1940 INCLUSIVE

Species	*Number of years observed*	*Average*	*Earliest*	*Latest*
YELLOW-BILLED CUCKOO	11	7–22	7– 7–'36	8– 6–'21
BLACK-BILLED CUCKOO	14	8– 6	7–15–'36	8–29–'32
WHIP-POOR-WILL	5	8– 1	7–21–'21	8– 9–'29
FLICKER	15	7–26	7– 5–'29	8–10–'37
ALDER FLYCATCHER	4	7–21	7–17–'29	7–27–'38
BLACK-CAPPED CHICKADEE	15	8–10	7–29–'36	8–16–'32
WINTER WREN	8	7–24	7–12–'34	8–16–'28
WOOD THRUSH	15	7–26	7–16–'36	8– 8–'33
OLIVE-BACKED THRUSH	14	7–30	7–12–'29	8– 8–'28
VEERY	14	7–12	7– 3–'34	7–23–'37
BLACK AND WHITE WARBLER	12	7–11	7– 7–'40	7–21–'37
NASHVILLE WARBLER	5	7–13	7– 6–'31	7–27–'39
YELLOW WARBLER	13	7–20	7– 8–'29	7–27–'21
BLACKBURNIAN WARBLER	14	7–12	7– 4–'29	7–23–'21
MOURNING WARBLER	15	7–16	7– 7–'32	7–29–'27
HOODED WARBLER	12	7–17	7– 8–'30	7–31–'29
MEADOWLARK	13	7–29	7–17–'36	8– 9–'40
RED-WING	7	7–22	7–18–'29	7–29–'40
PURPLE FINCH	13	7–12	7– 1–'27	7–26–'35
SAVANNAH SPARROW	14	7–29	7–18–'38	8–15–'35
VESPER SPARROW	15	7–31	7–17–'30	8– 9–'29
SWAMP SPARROW	9	8–14	8– 5–'40	8–29–'31

DATES OF LAST SONGS IN FAIRFIELD CO., CONNECTICUT 1941–1946 INCLUSIVE

Species	*Number of years observed*	*Average*	*Earliest*	*Latest*
MOURNING DOVE	3	8– 9	7–20–'41	8–21–'43
YELLOW-BILLED CUCKOO	6	8– 5	7–10–'44	8–22–'43
BLACK-BILLED CUCKOO	7	8–10	7–12–'44	8–24–'40
FLICKER	6	8–24	8–10–'46	8–30–'44
BLACK-CAPPED CHICKADEE	6	8–11	8– 2–'42	8–15–'46
WHITE-BREASTED NUTHATCH	6	7–25	7–13–'44	8–11–'41
BLUEBIRD	6	8–16	8– 4–'42	8–27–'46
PRAIRIE WARBLER	5	7–13	7– 3–'46	7–24–'43
LOUISIANA WATER-THRUSH	6	6–18	6–11–'46	6–23–'43
ORCHARD ORIOLE	6	7–12	7– 3–'44	7–17–'41
PURPLE FINCH	6	7–22	7–12–'42	7–31–'43
HENSLOW'S SPARROW	4	8–10	8– 2–'42	8–20–'41
SEASIDE SPARROW	6	7–31	7–22–'45	8–22–'44
VESPER SPARROW	6	7–22	7–14–'45	8– 8–'41

In the case of the Black-capped Chickadee there seems to be a peculiar condition. In most years the birds sing commonly in early August, and often late July when they should be molting. Cessation seems to come mainly in the third week of August, but song is often resumed late in that month.

There are numbers of interesting things to be noted in the study of cessation. Birds that have ceased to sing through the greater part of the day may continue to do so in early morning or in the evening.

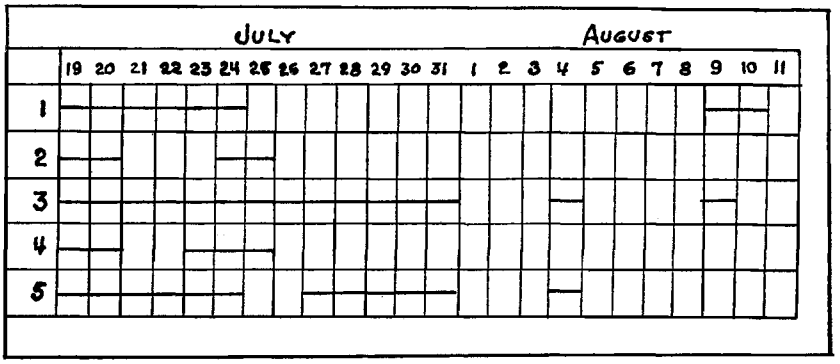
After the song has actually ceased a bird may call for a few days at that time of early morning or of evening when it formerly sang. For example, the Towhee calls *chewink* and the Tanager, *chip-churr*. A bird that has a flight song that is different from the common type, such as the Oven-bird, Yellow-throat and Mourning Warbler, may suddenly sing that song days or even weeks after the regular song has subsided.

Different individuals of the same species cease singing at different times. I made some notes on this matter this past summer (1946) that gave interesting and rather surprising results. The observations were made on the Wood Thrush, about the commonest and most conspicuous breeding bird in the vicinity of my present home. Until this past summer some particular bird has occupied a territory that included the woods directly back of the house. I have made records of the songs from year to year, and have known individual males by their peculiarities of song. Other Wood Thrushes could always be heard also, but they were farther away.

But in 1946 a peculiar condition occurred. Apparently my property was not one territory but a corner where several territories met. Five different male Wood Thrushes sang regularly close to the house—usually, except in the evening, only one or two at a time. Each individual had one or more unusual phrases in its song so that, though I made records of all the phrases of each one, that phrase alone was sufficient to identify the individual. I believe that all individual male Wood Thrushes can be recognized by their combination of phrases, even when no one phrase is unusual (Saunders, 1924).

I numbered the individuals from 1 to 5. No. 1 had a high-pitched phrase that sounded like *wheeo*. It was so different that I did not, at first, recognize it as a Wood Thrush. No. 2 had a five-note phrase, the first note high-pitched, and each succeeding note lower—a most unusual arrangement in a Wood Thrush. The whole phrase dropped more than an octave in pitch and sounded like *eeelaylaloloo*—the first and last notes long, and the three in the middle short. No. 3 had a phrase like *wayeetroo* that dropped an exact octave in the second and third notes. No. 4 was an old friend—the bird that had occupied the main territory in 1944 and 1945—and I checked my record of its phrases with records made in previous years. Its distinctive phrase was a two-note one that sounded like *heeray*. No. 5 had a low-pitched, unmusical phrase that slurred first down and then up, like *awooaw*. It also had an extremely musical four-note phrase, *ahloleelay*, that helped to mark it, though the phrase is one I have recorded from other Wood Thrushes in past years, albeit not a common one. As a matter of fact, though the other phrases of these five birds were ordinary ones, no single phrase of any one was exactly like that of any other.

I began recording the singing of all five individuals daily in early July, before there was any sign of cessation. All five sang every day until July 20. On the 21st, Nos. 2 and 4 were not singing. No. 4 resumed singing on the 23rd and No. 2 on the 24th. Both sang last on the 25th. Nos. 1 and 5 ceased on the 24th, while No. 3 continued to sing. No. 5 resumed singing on the 27th and continued with 3 until the 31st. In the first three days of August not a single Wood Thrush was heard. The weather then was rather cool. Then, on the 4th, with warmer weather, Nos. 3 and 5 resumed singing. Then there were four days of silence, but in the early morning of August 9, No. 3 began singing again, and, to my astonishment, No. 1 sang alternately with him. I had not heard No. 1 for fifteen days! On the



TEXT-FIGURE 1.—Cessation of individual Wood Thrushes in 1946.

10th, No. 1 sang alone, just a few phrases in the early dawn, and then Wood Thrush song was over for the year.

The diagram of this (Text-fig. 1) shows that, most of the time, these birds began and ceased to sing in pairs. This may have been merely accident, but is it well-known that the singing of one individual often induces another to sing. Perhaps a bird that is about to cease, with the approach of molt, will sing a bit longer if another is singing, or start again if another bird starts. But if a bird finds itself singing alone, as was the case with No. 1 on the last day, it will sing very little.

It is, of course, possible that one or more birds sang certain days when I did not hear them. But most Wood Thrush singing, toward the end of the season, is in early morning or in the evening. I was usually awake at daylight, with my windows open toward the rear of the house. I habitually spent evenings on a screened porch at the rear of the house, listening particularly for each one of these thrushes.

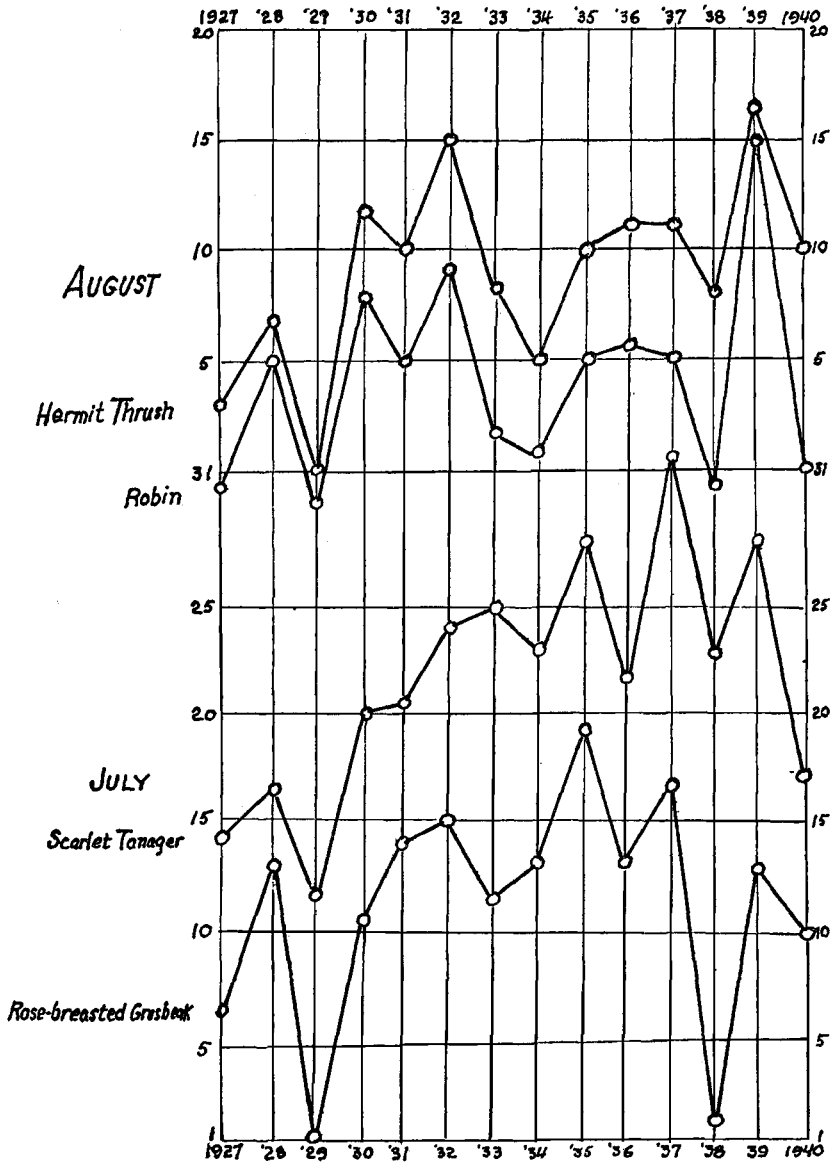
Just why No. 1, after more than two weeks silence, joined No. 3 in song on August 9, is a mystery. Why did he not, if molt was not too far advanced to sing, join in before, when 3 and 5 were singing? Is there some rule of Wood Thrush etiquette whereby two should accompany each other, but three is a crowd? Perhaps future observations of this sort, if I, or someone else, should have opportunity to make them, will throw more light on this subject, or prove it all a mere accident.

Comparisons of cessation in different seasons bring out points that should aid in determining just what it is that causes song to cease early in one year and continues late in another. The diagram (Text-fig. 2) of four species in the Allegany Park, illustrates this. The fairly close paralleling of the lines shows a general agreement of species as to early, average, and late years. In all four species, 1929 was the earliest year of cessation, but as to the latest year the agreement is not so positive. It is noteworthy that the two late-singing species, the Robin and the Hermit Thrush, agree quite well. There is also better agreement between the two earlier species, the Rose-breasted Grosbeak and the Scarlet Tanager, than between them and the two later species. This would seem to indicate a change in conditions, as the season advances, affecting those species that cease in July differently from those that cease in August.

I have tried making similar diagrams for the other species, but find it difficult to get another group of four, or even three, that may be put on the same diagram without interference of the lines. The number of species that cease very early, or very late, is few, whereas many species cease in late July or early August. I did not, however, find any other group of species that agree as perfectly as the four I have used as illustration.

Tabulating the data in the tables, there is evidence that 1929 was decidedly the year of earliest cessation. Eleven of the twenty-five species had their earliest dates of cessation in that year, and not more than five in any other year. In the same manner, 1937 was evidently the year of latest singing; nine species had their latest general cessation in that year, and five or less in any other year.

My Connecticut records cover too short a time to determine much of value, but the general trend of the figures shows that the first three years, 1941 to 1943, were ones of late singing, and the last three, 1944 to 1946, those of early cessation. The latest year appears to be 1941, and the earliest is, quite evidently, 1946.



TEXT-FIGURE 2.—General cessation of four species in Allegany State Park, N. Y., 1927–1945.

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Fairfield
Connecticut

OBSERVATIONS ON *NYCTIBIUS GRANDIS* IN SURINAM

BY FR. HAVERSCHMIDT

Plate 3

ON June 14, 1946, I was told that a strange owl had been found on the grounds of the Agricultural Experiment Station at Paramaribo, Surinam. On seeing the bird it was clear at first sight that there was no question of any owl, but that it was a nestling of the Great Goatsucker (*Nyctibius grandis*). It looked rather like a small Snowy Owl, white as it was, being barred all over its body with brown. With its huge, dark brown eyes and its rather pointed head, it had an extremely dog-like appearance and expression (Plate 3, left figure). It behaved quite calmly and was unable to perch sideways on branches but liked to sit in a rather upright posture at the end and at the sides of a log or on the ground. According to the finders it was found sitting on the ground. When approached too near or when about to be handled, it opened its huge mouth in a threatening attitude (Plate 3, right figure)